

## A Theory of Consciousness

**Chronometric Explorations of Mind.** MICHAEL I. POSNER. Erlbaum, Hillsdale, N.J., 1978 (distributor, Halsted [Wiley], New York). xvi, 272 pp., illus. \$14.95. The Experimental Psychology Series.

Mental chronometry, particularly the measurement of reaction-time, is probably the most widely used method in current information-processing psychology. In this book, Posner does not attempt a comprehensive review of the approach. Instead he presents a much more personal account, discussing the experimental paradigms he has worked on and, in many cases, initiated, such as those concerned with visual and name matching, alerting, orienting, the automatic facilitation of pathways, and the relation between limited-capacity processing and consciousness.

The book is far more than a tour of experimental paradigms of current interest, however. The history of human experimental psychology until about 1960 was one of rigor increasingly driving out content. Since then there has been a welcome return of content, and Posner's work has been important to this development. For the last 15 years he has been engaged in attempting to dissociate functional subsystems, and, in a series of flanking attacks, he has used the methods of modern experimental psychology to tackle a previously taboo central issue, consciousness. To compensate for the increased complexity of his object, he adopts an approach broader than that typical of information-processing psychology and has successfully incorporated evidence from the brain sciences, particularly from the study of evoked potentials.

The book, then, is a record of a series of investigations that seems likely to figure in a future history of psychology. Moreover, it is both reasonably accessible to people with no previous knowledge of the field and valuable to research workers in it. Unfortunately it also bears the marks of its origin, a lecture series. Quite frequently, individual experiments are not described in sufficient detail for the reader to assess the cogency of the evidence. A more serious intellectual flaw is Posner's failure to consider experimental results that pose problems for his views. Thus a theory that holds that a general limited-capacity mechanism exists—and this is the core of Posner's theory of consciousness—must account for subjects' ability to do two fairly complex tasks with little interference. Posner ignores the difficulty. The complementary

difficulty, that interference in probe-reaction-time tasks may not reflect general processing limitations, is merely dismissed in a single sentence and an inadequate footnote. Equally serious, if very understandable, is Posner's failure to articulate his theory of conscious control, other than by arguing that it involves an "isolable processing system" with a number of very important functions, perhaps too close to a neurological homunculus to be a satisfactory view. Posner makes no claim to have developed a theory of mind, but at the very least he has primed psychology for one.

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## Books Received

**Abnormal Neuronal Discharges.** Papers from a symposium, Monaco, July 1977. Nicolas Chalazonitis and Michel Boisson, Eds. Raven, New York, 1978. xvi, 432 pp., illus. \$32.

**Acts of the International Symposium on Rock Art.** Hanko, Aug. 1972. Sverre Marstrander, Ed. Universitetsforlaget, Oslo, 1978 (U.S. distributor, Columbia University Press, New York). 248 pp. \$16. Institute for Comparative Research in Human Culture, Oslo, Series A, vol. 29.

**Beyond Malpractice.** Compensation for Medical Injuries. A Policy Analysis. National Academy of Sciences, Washington, D.C., 1978. xiv, 88 pp. Paper, \$6.50.

**Biological Environmental Impact Studies.** Theory and Methods. Diana Valiela Ward. Academic Press, New York, 1978. x, 158 pp., illus. \$14.50.

**Cell Biology.** E. J. Ambrose and Dorothy M. Easty. University Park Press, Baltimore, ed. 2, 1977. xii, 562 pp., illus. Paper, \$16.95.

**Centrifugal Separations in Molecular and Cell Biology.** G. D. Birnie and D. Rickwood, Eds. Butterworths, Boston, 1978. xii, 328 pp., illus. \$24.95.

**Cerebral Motor Control in Man.** Long Loop Mechanisms. John E. Desmedt, Ed. Karger, Basel, 1978. x, 392 pp., illus. \$70.75. Progress in Clinical Neurophysiology, vol. 4.

**DNA Repair Mechanisms.** Proceedings of a symposium, Keystone, Colo., Feb. 1978. Philip C. Hanawalt, Errol C. Friedberg, and C. Fred Fox, Eds. Academic Press, New York, 1978. xviii, 814 pp., illus. \$33. ICN-UCLA Symposia on Molecular and Cellular Biology, vol. 9.

**Dopamine.** Papers from a symposium, Southampton, England, 1977. Peter J. Roberts, Geoffrey N. Woodruff, and Leslie L. Iversen, Eds. Raven, New York, 1978. xviii, 422 pp., illus. \$27.50. Advances in Biochemical Psychopharmacology, vol. 19.

**Ecology and Taxonomy of African Small Mammals.** Papers from a colloquium, Pittsburgh, Sept. 1977. Duana A. Schlitter, Ed. Carnegie Museum of Natural History, Pittsburgh, 1978. 214 pp., illus. Paper, \$15.

**Ecology of the Saguaro.** II. Reproduction, Germination, Establishment, Growth, and Survival of the Young Plant. Warren F. Steenbergh and Charles H. Lowe. National

Park Service, Washington, D.C., 1978 (available from the Superintendent of Documents, Washington, D.C.). xxii, 242 pp., illus. Paper, \$4.

**Flavor of Foods and Beverages.** Chemistry and Technology. Proceedings of a conference, Athens, June 1978. George Charalambous and George E. Inglett, Eds. Academic Press, New York, 1978. xvi, 422 pp., illus. \$26.

**Fluctuations of Glaciers.** Vol. 3, 1970-1975. Compiled by Fritz Müller. IAHS (ICSI), Paris, and Unesco, Paris, 1977 (U.S. distributor, Unipub, New York). x, 270 pp. + loose maps. Paper, \$40.

**The Gannet.** Bryan Nelson. Illustrations by John Busby. Buteo Books, Vermillion, S.D., 1978. 336 pp. + plates. \$25.

**Gastrointestinal Tract Cancer.** Martin Lipkin and Robert A. Good, Eds. Plenum, New York, 1978. xviii, 602 pp., illus. \$37.50. Sloan-Kettering Institute Cancer Series.

**General Lattice Theory.** George Grätzer. Academic Press, New York, 1978. xiv, 382 pp., illus. \$35. Pure and Applied Mathematics.

**Genetics and Morphogenesis in the Basidiomycetes.** Papers from a symposium. Marvin N. Schwalb and Philip G. Miles, Eds. Academic Press, New York, 1978. xiv, 168 pp., illus. \$14.

**Handbook of Learning and Cognitive Processes.** Vol. 6, Linguistic Functions in Cognitive Theory. W. K. Estes, Ed. Erlbaum, Hillsdale, N.J., 1978 (distributor, Halsted [Wiley], New York). viii, 312 pp. \$18.

**The Headman and I.** Ambiguity and Ambivalence in the Fieldworking Experience. Jean-Paul Dumont. University of Texas Press, Austin, 1978. xviii, 212 pp., illus. \$12.95. The Texas Pan American Series.

**An Illustrated Guide to Pollen Analysis.** P. D. Moore and J. A. Webb. Halsted (Wiley), New York, 1978. x, 134 pp. + plates. \$18.85.

**Immobilized Enzymes.** Research and Development. Ichiro Chibata, Ed. Kodansha, Tokyo, and Halsted (Wiley), New York, 1978. viii, 284 pp., illus. \$35.

**Imms' Outlines of Entomology.** O. W. Richards and R. G. Davies. Chapman and Hall, London, and Halsted (Wiley), New York, ed. 6, 1978. 254 pp., illus. \$22.50.

**Indexing Concepts and Methods.** Harold Borko and Charles L. Bernier. Academic Press, New York, 1978. x, 262 pp. \$14. Library and Information Science.

**Library Conservation.** Preservation in Perspective. John P. Baker and Marguerite C. Soroka, Eds. Dowden, Hutchinson and Ross, Stroudsburg, Pa., 1978 (distributor, Academic Press, New York). xvi, 460 pp., illus. \$45. Publications in the Information Sciences.

**Library Research Guide to Biology.** Illustrated Search Strategy and Sources. Thomas G. Kirk, Jr. Pierian Press, Ann Arbor, Mich., 1978. xii, 80 pp. Cloth, \$8.50; paper, \$4.50. "Library Research Guides" Series, No. 2.

**Liquor and Poverty.** Skid Row as a Human Condition. Leonard U. Blaumberg, Thomas E. Shipley, Jr., and Stephen F. Barsky. Rutgers Center of Alcohol Studies, New Brunswick, N.J., 1978. xxiv, 290 pp. \$14. Monographs of the Rutgers Center of Alcohol Studies, No. 13.

**Memory Development in Children.** Papers from a conference, Chapel Hill, N.C., May 1976. Peter A. Ornstein, Ed. Erlbaum, Hillsdale, N.J., 1978 (distributor, Halsted [Wiley], New York). viii, 280 pp., illus. \$16.50.

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## BOOKS RECEIVED

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**New Protein Foods.** Vol. 3, Animal Protein Supplies, Part A. Aaron M. Altschul and Harold L. Wilcke, Eds. Academic Press, New York, 1978. xvi, 408 pp., illus. \$39.50. Food Science and Technology.

**Nitrogen in Desert Ecosystems.** N. E. West and John Skujinš, Eds. Dowden, Hutchinson and Ross, Stroudsburg, Pa., 1978 (distributor, Academic Press, New York). xviii, 308 pp., illus. \$18. US/IBP Synthesis Series, 9.

**Nonlinear Evolution Equations.** Proceedings of a symposium. Madison, Wis., Oct. 1977. Michael G. Crandall, Ed. Academic Press, New York, 1978. x, 256 pp. \$11.

**Normal Radiologic Patterns and Variances**

**of the Human Skeleton.** An X-ray Atlas of Adults and Children. Rudolf Birkner. Translated from the German edition (Munich, 1977). Urban & Schwarzenberg, Baltimore, 1978. x, 564 pp., illus. \$74.

**The Origin of Table Manners.** Claude Lévi-Strauss. Translated from the French Edition (Paris, 1968) by John and Doreen Weightman. Harper and Row, New York, 1979. 552 pp., illus. \$30. Introduction to a Science of Mythology, vol. 3.

**The Oslo Paleorift.** A Review and Guide to Excursions. Johannes A. Dons and Bjørn T. Larsen, Eds. Universitetsforlaget, Oslo, 1978 (U.S. distributor, Columbia University Press, New York). 200 pp., illus. + loose maps. Paper, \$20. Norges Geologiske Undersøkelse, No. 337. Inter-Union Commission on Geodynamics Scientific Report No. 46.

**Ovarian Follicular Development and Function.** Papers from a workshop, Santa Cruz, Calif. A Rees Midgley and William A. Sadler, Eds. Raven, New York, 1978. xviii, 414 pp., illus. \$25.

**Photosynthetic Oxygen Evolution.** Papers from a symposium, Tübingen, Germany. H. Metzner, Ed. Academic Press, New York, 1978. xvi, 532 pp., illus. \$31.

**Physics and Contemporary Needs.** Vol. 2. Proceedings of a summer college, Nathiagali, Pakistan, June 1977. Riazuddin, Ed. Plenum, New York, 1978. x, 534 pp., illus. \$49.50.

**Physics and Philosophy.** Selected Essays. Henry Margenau. Reidel, Boston, 1978. xxxviii, 406 pp. \$36.50. Episteme, vol. 6.

**Physics of Planetary Interiors.** V. N. Zharkov and V. P. Trubitsyn. Translated from the Russian edition and edited by W. B. Hubbard. Pachart Publishing House, Tucson, 1978. xii, 388 pp., illus. Paper, \$38. Astronomy and Astrophysics Series, vol. 6.

**Physiological Tremor, Pathological Tremors and Clonus.** John E. Desmedt, Ed. Karger, Basel, 1978. viii, 218 pp., illus. \$58.75. Progress in Clinical Neurophysiology, vol. 5.

**Quaternary Tephrochronology of the Lake Lahontan Area, Nevada and California.** Jonathan Ogden Davis. Archeological Survey, University of Nevada Department of Anthropology, Reno, 1978. x, 138 pp., illus. Paper, \$8. Nevada Archeological Survey Research Paper No. 7.

**The Rise of Civilization.** From Early Farmers to Urban Society in the Ancient Near East. Charles L. Redman. Freeman, San Francisco, 1978. xii, 368 pp., illus. Cloth, \$17.95; paper, \$11.95.

**Rust Fungi on Legumes and Composites in North America.** George B. Cummins. University of Arizona Press, Tucson, 1978. xii, 424 pp., illus. Paper, \$8.95.

**Safe Drinking Water.** Current and Future Problems. Proceedings of a conference, Washington, D.C., 1978. Clifford S. Russell, Ed. Resources for the Future, Washington, D.C., 1978 (distributor, Johns Hopkins University Press, Baltimore). xx, 642 pp. Paper, \$12.

**The Said and the Unsaid.** Mind, Meaning, and Culture. Stephen A. Tyler. Academic Press, New York, 1978. xii, 490 pp., illus. \$26. Language, Thought, and Culture.

**Science and Religion in America, 1800-1860.** Herbert Hovenkamp. University of Pennsylvania Press, Philadelphia, 1978. xii, 274 pp. \$16.

**The Scientific Enterprise, Today and Tomorrow.** Adriano Buzzati-Traverso. Unesco, Paris, 1977 (U.S. distributor, Unipub, New York). xvi, 440 pp., illus. \$53.


**Scientific Illustration.** John L. Ridgway. Stanford University Press, Stanford, Calif., 1978. xiv, 174 pp., illus. \$15. Reprint of the 1938 edition.

**Television and Human Behavior.** George Comstock, Steven Chaffee, Natan Katzman, Maxwell McCombs, and Donald Roberts with the assistance of Thomas Bowers, Marilyn Fisher, Georg Lindsey, and Albert Tims. Columbia University Press, New York, 1978. xx, 584 pp., illus. Cloth, \$16.95; paper, \$9.95.

**Temperate-Zone Pomology.** Melvin N. Westwood. Freeman, San Francisco, 1978. xviii, 248 pp., illus. \$25.

**Uses of Enzymes and Immobilized Enzymes.** Francis X. Hasselberger. Nelson-Hall, Chicago, 1978. xii, 220 pp., illus. \$14.95.

**Vibration Analysis.** Robert K. Vierck. Crowell (Harper and Row), New York, ed. 2, 1978. xvi, 512 pp., illus. \$19.95.



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